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COORDINATING COMMITTEERESUME OF REMARKS MADE BY THE UNITED STATES DELEGATION
ON ELECTRON BEAM WELDERS ON FEBRUARY 1st, 1960*)

1. The United States Delegate said he believed that the presentation previously made on electronic beam welders provided an adequate basis on which Governments could take positions. He hoped that in the light of the information already presented by his Delegation, Member Governments might now be able to support the United States request for embargo. Nevertheless, his authorities had pursued this problem further and additional information would be presented by his expert.

2. The United States expert first replied to questions raised by other Delegations during previous discussions of the item. The German Delegation had asked whether electron beam welding equipment was not identical with electron beam boring equipment. The United States expert replied that this question had been discussed with United States representatives of the two known Western European manufacturers of this equipment, representatives of the American producers and with authorities dealing with the need for and use of such equipment in producing weapons. These sources had said that the electron beam welder was an equipment separate and distinguishable from boring machines employing an electron beam technique. They had also said that it was possible to modify the welding equipment so that it could do boring, but that this was not done and was not expected to be done. The United States expert noted that the electron beam welder was also used as a vacuum furnace for certain limited applications, but that this was a strictly ancillary use. He also reported that a brochure furnished to him by the German expert had been examined and found to be a brochure for boring equipment and not for welding equipment.

3. Several Delegations had wished to know the use of such equipment in strategic versus non-strategic applications. The United States expert said that further information received had reinforced the United States view that the primary use was strategic. He said that there were between 20 and 25 electron beam welders currently in use in the United States. These were distributed among atomic energy installations, research groups working on both metallic and electronic problems and firms making weapons. Reports from manufacturers cited the use of such equipment primarily for reactive, refractory and other high performance materials. These reports showed that emphasis was placed on the fusion welding of materials, which could not previously be welded, including heat sensitive assemblies, dissimilar materials and even some non-conductors. He noted that most of the reactive, refractory and other high performance materials and alloys were embargoed. As a further indication of United States interest in this area, he pointed out that while only four United States firms were currently producing such equipment for sale, a fifth United States firm would shortly begin production of the German Zeiss equipment, a sixth major firm was manufacturing the equipment for its own use and several others were currently designing their own equipments for the uses described above. He also noted that such equipment was quite expensive and currently very limited in work size capacity. These factors in addition to the very high cost of the metals involved markedly limited the potential for general industrial use of such equipment.

4. Thus, the United States expert concluded, further research had reinforced the United States view that this equipment was strategic. He hoped that this additional information would assist other Governments in deciding to support the proposed embargo.

5. In response to comments made by the United Kingdom Delegate, the United States expert said that the United States proposal to embargo electron beam welding equipment was primarily based on its principal utilization in military production,

*) The present résumé is submitted by the United States Delegation in accordance with the wish expressed by the Committee at the meeting on February 1st, 1960.

but that there was also an important element of technological know-how. He recognized that the electron beam was already used within the Bloc for certain related purposes but, as previously indicated, the United States authorities believed that the Bloc still lagged behind the Free World in this regard. He noted that a number of significant improvements had already been made in the design and operation of such welding equipment and that one of the important United States contributions had been the development of an improved electron beam gun. Moreover, firms and individuals consulted believed that the development of this equipment was still in its early stages and that marked improvements were to be expected. The United States expert was confident that this would be so not only for United States firms but for other Free World producers as well. Therefore, while not resting the United States position above on the technological point, he felt it could not be properly dismissed as unimportant.

6. One delegate had said that the equipment was probably not worthy of embargo if the main justification was its use on embargoed materials. The United States expert reiterated that these equipments were advertised, bought and used to weld reactive, refractory and other high performance material. Aside from the fact that these materials were themselves embargoed, he pointed out, the Committee had only recently agreed to the embargo of both rolling mills and presses designed to work or form refractory metals and alloys as well as other equivalent materials. He said that major advances were being made in both the production and processing of these materials into semi-fabricated forms. A major problem in doing this was the proper joining of such materials. Until recently some had never been satisfactorily welded. The United States expert stressed that uniformity of welding these materials was very difficult to achieve and that thick pieces were especially difficult to join. These were fundamental problems for the future uses of such materials. The electron beam welder appeared to provide a reasonable solution for certain of these problems in areas of strategic importance to both electronics and certain weapons systems.

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